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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
CONGRESSIONAL AND
INTERGOVERNMENTAL
RELATIONS

The Honorable Pete Olson
Vice Chairman
Subcommittee on Energy and Power
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

Dear Vice Chairman Olson:

Enclosed please find the U.S. Environmental Protection Agency's responses to the Subcommittee's questions for the record following the July 6, 2016, hearing titled "A Review of EPA's Regulatory Activity During the Obama Administration: Energy and Industrial Sectors."

I hope this information is helpful to you and the members of the Subcommittee. If you have further questions, please contact me or your staff may contact Matthew Davis in the EPA's Office of Congressional and Intergovernmental Relations at davis.matthew@epa.gov or at (202) 564-1267.

Sincerely,

Tristan Brown
Deputy Associate Administrator

Enclosure

cc: The Honorable Bobby Rush
Ranking Member, Subcommittee on Energy and Power

Attachment 1—Additional Questions for the Record

The Honorable Ed Whitfield

1. **According to a recent report issued by the Competitive Enterprise Institute, the total annual compliance costs of EPA regulations are now approximately $386 billion. [1] If this estimate is not accurate, please provide the agency's best estimate of the current annual compliance costs for its rules.**

Response: The EPA does not estimate annual benefits or annual compliance costs for a single year for all of its regulations because the year of analysis differs among programs.

2. **Pursuant to Executive Order 12866, which addresses regulatory planning and review, a "significant regulatory action" includes an action that is likely to result in a rule that may "[h]ave an annual effect on the economy of $100 million or more." Pursuant to Executive Order 12866, such regulatory actions must be submitted for review by Office of Management and Budget (OMB).**

   A. **Please identify each rule issued by EPA since 2009 which imposes costs of $100 million or more in any one year, and the agency's estimate of the compliance costs.**

   B. **Please identify each rule proposed but not yet finalized which would impose costs of $100 million or more in any one year, and the agency's estimate of the compliance costs.**

   C. **Does EPA track the *total* compliance costs of its "significant regulatory actions"? If yes, please provide the total costs for each of the years 2009 through the present.**

Response: The EPA does not maintain a list of all regulations that have been deemed economically significant, a test that includes factors beyond just the $100 million per year analysis.

3. **The EPA's rule disapproving Oklahoma's and Texas's plans for controlling regional haze and imposing EPA's own federal plan was recently stayed by the federal courts. This rule is estimated by affected stakeholders to impose costs of $2 billion.**

   A. **Did EPA submit this federal plan to OMB for review? If not, why not?**

Response: No, the determination was made that this federal plan was not a "significant regulatory action" pursuant to E.O. 12866.

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[1] *See* "Ten Thousand Commandments, An Annual Snapshot of the Federal Regulatory State, 2016 Edition" available at https://cei.org/sites/default/files/Wayne%20Crews%20-%20Ten%20Thousand%20Commandments%202016%20-%20May%204%202016.pdf.

B. Does EPA submit federal plans developed pursuant to the Clean Air Act that impose costs in excess of $100 million for OMB and interagency review? If not, why not?

Response: EPA includes federal plans that fall within the definition of "regulatory actions" in the significance determination process with the Office of Management and Budget (OMB) in order to determine whether the action is "significant" as defined within EO 12866. If the regulatory action is determined to be significant, then the federal plan is submitted to OMB for review.

C. Is there any interagency review of such federal plans as they are developed?

Response: EPA routinely consults with the interagency community, as appropriate. For example, we routinely consult with Federal Land Managers during the development of rules addressing visibility impairment in our national parks and wilderness areas.

4. In Questions for the Record following the Energy and Commerce Committee's March 22, 2016 hearing regarding the EPA's Fiscal Year 2017 Budget, we asked for the agency's estimate of the total cost of the "Mercury and Air Toxics Standards." In response, EPA declined to provide a specific amount, and instead stated that "The EPA determined the projected annual cost of MATS is a small fraction when compared to overall sales in the power sector-between just 2.7 and 3.5 percent of annual electricity sales from 2000 to 2011. The EPA also determined that annual compliance capital and operating expenditures to comply with MATS are a small fraction of the industry's capital and operating expenditures in historical context."

A. What is the approximate dollar amount of 2.7 percent of annual electricity sales from 2000 to 2011?

B. What is the approximate dollar amount of 3.5 percent of annual electricity sales from 2000 to 2011?

C. What is the approximate amount EPA determined would be the annual compliance capital and operating expenditures to comply with MATS?

Response: The EPA estimated the annual costs of complying with MATS to be $9.6 billion, as compared to annual benefits of $37-$90 billion. Further detail can be found in the final RIA at: https://www3.epa.gov/ttnecas1/regdata/RIAs/matsriafinal.pdf. Furthermore, the EPA issued a final supplemental finding on April 14, 2016. In that final supplemental finding, the EPA discussed the costs and benefits of the rule beginning on page 24423. The final finding was published in the Federal Register on April 25, 2016 and can be found at: https://www.gpo.gov/fdsys/pkg/FR-2016-04-25/pdf/2016-09429.pdf.

5. EPA published its 111(b) rule setting carbon dioxide standards for new coal-fired power plants in October 2015. In response to questions for the record concerning the

technical and economical readiness of CCS for new coal-fired power plants following the Committee's March 22, 2016 EPA budget hearing with EPA Administrator McCarthy, EPA states that "assertions about SaskPower Boundary Dam Unit 3 operational failures have been largely misstated or mischaracterized." EPA states further that "The carbon dioxide (CO2) capture system at SaskPower Boundary Dam is operating successfully.... Operational issues in the first year of operation were related largely to ancillary systems and not to the carbon capture system, and appear to have been successfully resolved."

This response does not square with current facts concerning the capture technology, as reported by SaskPower. For example, a July 2016 statement in SaskPower's own Boundary Dam performance report for June explicitly identifies unresolved problems with the carbon capture system, fully 20 months after startup and eight months after a major renovation. Following a maintenance outage just in May, SaskPower reports for June that the "facility needed to be taken down on separate occasions due to issues with the chemistry of the capture process. The chemical compound used at the core of the CCS process (amine) is affected by heat and by fly ash (coal particulates). This meant the amine and the complex chemistry behind it needed to be analyzed and fixes identified. A permanent solution is also being worked on."

A. **Please explain whether and to what extent EPA has directly validated that the CCS process has been (a) "operating successfully" and (b) that issues concerning chemistry of the capture process have been adequately resolved.**

B. **Explain how EPA's due diligence concerning ongoing technical and economic issues surrounding CCS operations at electric power generating units have been analyzed and documented by the agency.**

Response: According to reports on SaskPower's website (www.saskpower.com), the CCS system at Boundary Dam is operating highly successfully. In June 2016, the CCS system captured and removed over 62,000 tonnes of CO_2, at a capture rate exceeding the rate on which the EPA new source standard is predicated. The amount of CO_2 captured in June also exceeds the amount required by contract to be delivered for enhanced oil recovery. Also in June, as your question notes, the system went off-line briefly to deal with certain issues that are not directly associated with the carbon capture system but, rather, with supporting or ancillary systems. The company's July 2016 report indicates that the minor, ancillary issues were resolved, stating:

"The CCS facility at Boundary Dam Power Station performed well in July. It successfully captured 76,546 tonnes of carbon dioxide, while operating nearly 100 per cent of the hours in the month, slowing down for 15 minutes near the end of the month. This means the carbon capture unit has surpassed the capture of a million tonnes of carbon dioxide since it began operations in October 2014.

To increase daily production and potentially reduce periodic maintenance outages, SaskPower has applied new equipment to filter the amine solution at the centre of the process. This has been online for approximately 10 days and has so far reduced degradation of the amine solution by more than half.

....

The process remains on track to capture 800,000 tonnes in 2016. Importantly, SaskPower continues to meet emission regulations and the needs of its offtaker."
(http://www.saskpower.com/about-us/blog/bd3-status-update-july-2016/)

Also note that on April 29, 2016, the EPA denied five petitions for reconsideration of the Carbon Pollution Standards, based on the agency's affirmation of the robust analytical approach in the final rule. Following a process outlined in the Clean Air Act, the EPA carefully considered the variety of technical and legal issues raised in the petitions, including those regarding the performance and cost of CCS technology. After reviewing these petitions, the EPA confirmed that CCS is performing well and that none of the issues raised in the petitions alter the EPA's determination in the final rule that partial CCS is adequately demonstrated and can be implemented at a reasonable cost. See "Basis for Denial of Petitions to Reconsider the CAA Section 111(b) Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Utility Generating Units" which details the agency's rationale for denial of those petitions for reconsideration can be found at: https://www.epa.gov/cleanpowerplanlcarbon-pollution-standards-petitions-reconsideration-april-2016.

6. **You stated during your testimony that EPA consulted with and obtained assurances from equipment vendors or contractors that a coal-fired power plant could be built with CCS technologies to meet the new standards. In addition, in response to questions for the record concerning the technical and economical readiness of CCS following the Committee's March 22, 2016 budget hearing with Administrator McCarthy, EPA references "a discussion in the final rule of commercial vendors who offer carbon capture technology and provide performance guarantees."**

   A. **Has EPA specifically confirmed that commercial vendors will offer CCS technology with performance guarantees for utility scale electric power generating units?**

   B. **If yes, which equipment vendor or contractor(s) did EPA consult with and obtain such guarantees?**

Response: In the final rule, published on October 23, 2015, the EPA discussed vendor guarantees, including performance guarantees from vendors, public statements from industry officials, and review of the literature starting on page 64554. The final rule can be found at: https://www.gpo.gov/fdsys/pkg/FR-2015-10-23/pdf/2015-22837.pdf.

7. **In its final Section 111(b) rule setting carbon dioxide standards for new coal-fired power plants issued last year, EPA cited two commercial scale power plant CCS projects in the United States, including the Kemper Project and Texas Clean Energy Project, and a small CCS power plant project in Canada, known as Boundary Dam. Since the rule was finalized these projects have continued to be subject to significant controversy, including with regard to technological and cost issues.**

A. What is the current status of the Texas Clean Energy Project?

B. Is EPA continually monitoring the technological and cost issues relating to the development and deployment of CCS for the power sector?

C. If yes, please explain what EPA is doing to monitor the technological and economic feasibility of CCS for the power sector?

D. Is EPA updating its cost estimates for CCS for the power sector? If yes, what is EPA's updated cost estimate for CCS technologies for a new coal-fired electric generating unit?

Response: The developers of the TCEP would be best positioned to inform you about the status of that project. The EPA continually strives to keep abreast of technical and economic developments, but is not currently revisiting the regulatory determinations it made through notice-and-comment rulemaking.

8. When EPA finalized its 111(d) rule for fossil fuel-fired electric generating units, referred to by the agency as the "Clean Power Plan," the agency also proposed "Model Trading Rules." According to its website, EPA plans to finalize the model trading rules this August.

A. Is that accurate?

Response: No.

B. Does EPA plan to finalize the model trading rules before the end of the Administration?

Response: Many states have asked EPA to move forward with our outreach and to continue providing support and developing tools related to the Clean Power Plan. We are developing these tools in a way that is consistent with the Supreme Court's stay of the Clean Power Plan.

C. If EPA finalizes the model trading rules, would that mean a state or affected party that wants to challenge the rules would have to take legal action within 60 days, or forego that right?

Response: If an action of the EPA is judicially reviewable under the Clean Air Act, that review generally is governed by section 307.

9. Under Section 109(d)(2)(c)(iv) of the Clean Air Act, the Clean Air Scientific Advisory Committee (CASAC) is directed to advise EPA of "any adverse public health, welfare,

social, economic or energy effects which may result from various strategies for attainment of national ambient air quality standards." In Questions for the Record following the Energy and Commerce Committee's March 22, 2016 hearing regarding the EPA Fiscal Year 2017 Budget, we asked why EPA had not requested CASAC provide advice on adverse effects relating to implementing national ambient air quality standards (NAAQS). In response, EPA stated that Section 109(d)(2)(c)(iv) "does not require that CASAC provide this advice as part of the five year review cycle. Moreover, when the Supreme Court in *Whitman v. American Trucking Associations*, 531 U.S. 457 (2001), held that the EPA could not consider implementation and other costs in setting the NAAQS, the Court further held that any CASAC advice related to costs of implementation . . . would not be relevant to the EPA's review of the NAAQS."

A. Section 109(d)(2)(c)(iv) does not refer solely to costs, but also to "adverse public health, welfare, social . . . or energy effects."

i. Does EPA maintain adverse public health effects should not be considered in setting or reviewing NAAQS?

ii. Does EPA maintain adverse welfare effects should not be considered in setting or reviewing NAAQS?

iii. Does EPA maintain adverse welfare, social or energy effects should not be considered or is not relevant in setting or reviewing NAAQS?

B. For any current or planned CASAC review of criteria pollutants, will EPA request CASAC consider potential adverse effects in their review, as required by the statute?

C. Is CASAC considering adverse effects of implementing any of the existing NAAQS?

D. Does EPA maintain that Section 109(d)(2)(c)(iv) is an optional provision of the CAA and does not impose any obligations on the agency?

Response: Consistent with direction from the courts, the EPA considers all advice from CASAC that is pertinent to setting the NAAQS under section 109, including all effects on public health and welfare, whether beneficial or adverse.

10. We understand EPA recently has made amendments to its Boiler MACT and other air toxics rules to remove the affirmative defense to civil penalties for violations caused by malfunctions.

A. Is that correct?

B. Is it correct that EPA plans to exercise "case-by-case enforcement discretion" whenever a source may have failed to meet air toxics standards as a result of a malfunction?

C. Does this mean every time there is a malfunction a facility could be subject to an enforcement action by EPA or citizen suit?

D. Is it correct that Congress recognized that malfunctions do occur in the real world and has EPA historically recognized this as well, and not treated malfunctions as enforcement triggers?

E. It appears this new case-by-case discretion increases uncertainty about litigation and enforcement risks pertaining to malfunctions. Explain why EPA chose not to promulgate standards that account for malfunctions and so help avoid increased enforcement and litigation uncertainty?

Response: EPA has removed affirmative defense provisions from several air toxics rules. The reasoning behind the EPA's approach to malfunctions and removal of affirmative defense provisions is based on D.C. Circuit opinions addressing the issue including Natural Resources Defense Council v. EPA, 749 F.3d 1055 (D.C. Cir 2014) and was recently affirmed in the July 29, 2016 D.C. Circuit decision in U.S. Sugar v. EPA, No.11-1108. EPA's approach is also discussed in several rulemakings including the preamble to the Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards Proposal published June 30, 2014 at 79 FR 36880, 36944-46.

11. In the EPA's 2012 standards for the oil and gas sector, EPA expanded the source category list to include any oil and gas operation and equipment that were not previously regulated.

A. What was the rationale for expanding the sector without an endangerment finding?

B. Is this an approach EPA believes it can take for the more than 70 other source categories regulated under the New Source Performance Standards Program?

Response: The EPA did not expand the source category list in the 2012 NSPS rulemaking. Sources covered by the 2012 standards were within the listed oil and gas source category.

12. EPA is beginning to pursue regulations targeting hundreds of thousands of existing oil and natural gas wells currently regulated by states.

A. Is EPA planning to propose or finalize regulations before the end of the Administration?

B. Is EPA currently considering setting individual state methane targets or budgets similar to what the agency has done in the Clean Power Plan for the power sector?

C. Is EPA currently developing a proposed "federal plan" that would apply to existing sources in the oil and gas sector similar to what has been proposed for the Clean Power Plan?

Response: The Information Collection Request (ICR) process, which is governed by the Paperwork Reduction Act, provides the public two opportunities to review drafts of the ICR. The comment period on the first draft of the ICR closed August 2, 2016. The EPA reviewed those comments and issued a second draft of the ICR that was available for public comment until October 31, 2016 while it was under review at OMB. After additional review and input, including from external stakeholders, the final ICR was issued to industry on November 10, 2016 after completing OMB review and receiving a valid OMB control number. Any future proposed or final rules regulating existing oil and gas sources would be developed after a review of the information received through this public process.

13. **Concerning Section 321 of the Clean Air Act, which provides: "The Administrator shall conduct continuing evaluations of potential loss or shifts of employment which may result from the administration or enforcement of the provision of [the Clean Air Act] and applicable implementation plans, including where appropriate, investigating threatened plant closures or reductions in employment allegedly resulting from such administration or enforcement."**

    A. **In 1991, Energy and Commerce Committee Chairman Dingell made requests to EPA concerning at least two specific instances the Committee believed required EPA investigations pursuant to Section 321. One incident concerned the shutdown of Bethlehem Steel's Sparrows Point facility and another involved furniture makers in California. Please explain the disposition of these cases/requests and describe any EPA findings.**

    B. **Please explain how EPA gathered information concerning these cases and the basis for its resulting decisions.**

    C. **Please explain EPA's coordination with the Department of Labor and Department of Commerce, which also were notified of the worker protection provisions and the requirement for investigation.**

Response: The EPA is not aware of any records relating to this Congressional inquiry from 25 years ago.

14. **Describe all cases that EPA has investigated pursuant to Section 321, and EPA's procedures for investigating those cases.**

Response: The EPA evaluates potential losses or shifts of employment that may result from the provisions of the Clean Air Act as reflected in numerous Regulatory Impact Analyses, Economic Impact Assessments and other economic research. The EPA is aware of a 1981 report pursuant to section 321(b) of an investigation in response to allegations concerning a Montana site of Anaconda Copper Company.

The Honorable Bill Flores

1. **In the "Clean Power Plan," EPA maintains Section 111(d) of the Clean Air authorizes the agency to set emissions limits for power plants based not on what is achievable by individual electric generating units, but by going "beyond the fence." EPA effectively redefines the source being regulated as being not the actual unit, but instead taking a "system wide" approach and looking at state electricity resource planning overall.**

   A. Is EPA considering a similar system wide approach for the oil and gas sector?

   B. Can you rule out such an approach, categorically?

Response: On May 12, 2016, the EPA issued three final rules that together will curb emissions of methane and smog-forming volatile organic compounds (VOCs) from new, reconstructed and modified oil and gas sources, while providing greater certainty about Clean Air Act permitting requirements for the industry.

The EPA also took a critical step needed to carry out the Administration's commitment to regulate methane emissions from *existing* oil and gas sources: the agency issued for public comment an Information Collection Request (ICR) that will require companies to provide extensive information instrumental for developing comprehensive regulations to reduce methane emissions from existing oil and gas sources.

The ICR process, which is governed by the Paperwork Reduction Act, provides the public two opportunities to review drafts of the ICR. The comment period on the first draft of the ICR closed August 2, 2016. The EPA reviewed those comments and issued a second draft of the ICR that was available for public comment until October 31, 2016 while it was under review at the Office of Management and Budget (OMB). After additional review and input, including from external stakeholders, the final ICR was issued to industry on November 10, 2016 after completing OMB review and receiving a valid OMB control number. Any future proposed or final rules regulating existing oil and gas sources would be developed after a review of the information received through this public process.

2. **Under the "Clean Power Plan," EPA has also maintained that it can set carbon dioxide targets for each state's electricity sector which effectively can only be met by participating in state, regional, or federal emissions trading programs to mitigate the huge costs of the resources shifting.**

   A. Is EPA considering a similar state targets approach for each state's oil and gas sector?

   B. Can you rule out a regulatory cap-and-trade approach categorically for the oil and gas sector?

   C. Can you rule out categorically EPA requiring changes to a state's oil and gas resource planning?

Response: On May 12, 2016, the EPA issued three final rules that together will curb emissions of methane and smog-forming VOCs from new, reconstructed and modified oil and gas sources, while providing greater certainty about Clean Air Act permitting requirements for the industry.

The EPA also took a critical step needed to carry out the Administration's commitment to regulate methane emissions from *existing* oil and gas sources: the agency issued for public comment an ICR that will require companies to provide extensive information instrumental for developing comprehensive regulations to reduce methane emissions from existing oil and gas sources.

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3. The EPA's unprecedented 111(d) regulations for the electricity sector have been stayed by the U.S. Supreme Court, in response to legal challenges brought by 27 states

A. Given many of the same issues relating to the scope of the agency's authority are likely to be raised, would it make sense to determine the legality of the "Clean Power Plan" before moving forward with 111(d) rules for the oil and gas sector?

Response: On May 12, 2016, the EPA issued three final rules that together will curb emissions of methane and smog-forming VOCs from new, reconstructed and modified oil and gas sources, while providing greater certainty about Clean Air Act permitting requirements for the industry.

The EPA also took a critical step needed to carry out the Administration's commitment to regulate methane emissions from *existing* oil and gas sources: the agency issued for public comment an (ICR that will require companies to provide extensive information instrumental for developing comprehensive regulations to reduce methane emissions from existing oil and gas sources.

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The Honorable Markwayne Mullin

1. **Ms. McCabe, Office of Management and Budget (OMB) Circular A-4 guides Federal Agencies on the development of the Regulatory Impact Analysis that is required to accompany agency rules. Circular A-4 instructs agencies to include discount rates of 3 and 7 percent when evaluating the cost and benefits of its rules. This permits a comparison of the respective present values. However, both the Social Cost of Carbon estimates and the Social Cost of Methane estimates, fail to use the 7 percent discount rate. Is the failure to use the 7 percent discount rate in both the Social Cost of Carbon estimates and the Social Cost of Methane estimates because at that discount rate, the Social Cost of Carbon becomes negative? The Social Cost of Methane drops as well? For the Social Cost of Carbon a 7 percent discount rate actually reflects a benefit to the emission of carbon dioxide. Has the Agency ever run either the Social Cost of Carbon or Social Cost of Methane estimates using the proper discount rate of 7%?**

Response: The choice of a discount rate, especially over long periods of time, raises difficult questions of science, economics, and law. Although it is well understood that the discount rate has a large influence on the current value of future damages, there is no consensus about what rates to use in this context. For rules with both intra- and intergenerational effects, agencies traditionally employ constant discount rates of both 3 percent and 7 percent in accordance with the Office of Management and Budget (OMB) Circular A-4. As Circular A-4 acknowledges, however, the choice of discount rate for intergenerational problems raises distinctive problems and presents considerable challenges.

In light of these challenges, the Interagency Working Group (IWG) led by OMB conducted an exhaustive review of the discount rate literature and calculated the estimates using three different discount rates: 2.5 percent, 3 percent, and 5 percent. In the "Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12866" the IWG discusses extensively the rationale as to why it applied discount rates of 2.5 percent, 3 percent, and 5 percent in estimating the SCC (https://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf). While the IWG has updated the estimates and issued several revisions, the methodology has not changed. The discounting framework discussed in 2010 applies to the current SC-CO_2 estimates and the recently published "Addendum to Technical Support Document on Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866: Application of the Methodology to Estimate the Social Cost of Methane and the Social Cost of Nitrous Oxide" (https://www.whitehouse.gov/sites/default/files/omb/inforeg/august_2016_sc_ch4_sc_n2o_addendum_final_8_26_16.pdf).

There is little support in the literature for using rates higher than 5 percent in an intergenerational context. Therefore, the IWG did not calculate the SC-CO_2 and the SC-CH_4 estimates using a 7 percent discount rate. The reasons for not including the 7 percent rate from Circular A-4 are further discussed in the IWG's Response to Comments on the November 2013 Federal Register Notice (https://www.whitehouse.gov/sites/default/files/omb/inforeg/scc-response-to-comments-final-july-2015.pdf; pp 20-22).

2. **OMB Circular A-4 directs Federal Agencies to evaluate the costs and benefits that accrue to citizens and residents of the United States. While Circular A-4 specifies that an evaluation of global effects, when undertaken, is to be reported separately from domestic costs and benefits, your Agency in the final methane rule calculated only the global benefits from a reduction in methane emissions while ignoring domestic calculations for costs/benefits. Why did the Agency fail to provide such information to the citizens and residents of the United States? While your position may be that the global benefits of methane emissions reductions outweigh the domestic costs – the citizens and residents of the United States have no analysis upon which to make that determination?**

Response: As discussed at length in the RIA accompanying the final oil and gas rule as well as in the recent 2016 Addendum to the SC-CO_2 TSD (https://www.whitehouse.gov/sites/default/files/omb/inforeg/august_2016_sc_ch4_sc_n2o_addendum_final_8_26_16.pdf), the SC-CH_4 uses an analytical approach that follows the SC-CO_2 approach, including on the question of the scope of benefits to consider. The EPA, along with other members of the IWG, has determined that it is reasonable to use the same focus on global benefits for valuing emission reductions that was used to estimate the SC-CO_2. This is because anthropogenic climate change involves a global externality: emissions of most greenhouse gases (including CH_4) contribute to damages around the world even when they are emitted in the United States, and conversely, greenhouse gases emitted elsewhere contribute to damages in the United States. Consequently, to address the global nature of the problem, estimates of SC-CH_4 must incorporate the full (global) damages caused by emissions.

3. **In July 2015, the Office of Management & Budget, after being forced to put out the Social Cost of Carbon estimates for public comment, requested the National Academies of Science review the Social Cost of Carbon estimates. Shortly after the commencement of the NAS review, EPA, without appropriate peer-review and separate public notice and comment, utilized Social Cost of Methane estimates in justifying the costs and benefits of the September 2015 proposed and recently finalized rules addressing methane emissions from new oil and gas wells and operations. With the inherent problems associated with the Social Cost of Carbon estimates, as developed by an executive branch interagency working group, why would EPA move forward with the Social Cost of Methane estimates in such a unilateral fashion?**

Response: The SC-CH_4 was not used by EPA to determine the best system of emission reduction in the New Source Performance Standards for the oil and gas industry. For standard setting, which is separate and distinct from the RIA process, the EPA considered a number of factors consistent with the Agency's interpretation of Clean Air Act sections 111 (a)(1) and (b)(1)(B). These factors included the amount of the pollutant that is being emitted from the source category, the availability of technically feasible control options, and the costs of those control options.

The SC-CH_4 estimates allowed the EPA to account for the monetized climate benefits of the estimated methane reductions in the benefit-cost analysis presented in the RIA. As part of the

regulatory process, the EPA develops a RIA to assess the national impacts of rules that have costs or benefits that exceed $100 million annually.

Furthermore, as discussed in the RIAs accompanying both the proposed and final oil and gas rules, the SC-CH_4 estimates were peer-reviewed and followed a well-established methodology. Specifically, these estimates underwent a standard double blind peer review process prior to journal publication. The EPA then sought additional external peer review of technical issues associated with its application to regulatory analysis.[2] Consistent with its standard rulemaking practice and commitment to transparency, rigorous analysis, and public involvement, the EPA also sought public comment on the valuation of non-CO_2 GHG impacts such as SC-N_2O and scientific review of the usage of the SC-CH_4 estimates throughout the process leading up to inclusion in the RIA accompanying the final oil and gas rule. Finally, we note that the IWG has reviewed the methodology and determined that these SC-CH_4 estimates offer an approach for improving analyses of regulatory actions with CH_4 emissions impacts in a manner consistent with the requirements of OMB's Information Quality Guidelines and OMB Circular A-4.

4. **Did you reach out to OMB during your Agency's development of the Social Cost of Methane estimates to request a convening of an Interagency Working Group on the Social Cost of Methane?**

Response: The IWG has reviewed the methodology and determined that these SC-CH_4 estimates offer an approach for improving analyses of regulatory actions with CH_4 emissions impacts in a manner consistent with the requirements of OMB's Information Quality Guidelines and OMB Circular A-4.

5. **In the finalized rule for the oil and gas sector, the accompanying Regulatory Impact Analysis notes that quantification of benefits from reductions in hazardous air pollutants, ozone and particulate matter is not possible for the rule and therefore all the monetized benefits from the rule are attributable to the Social Cost of Methane estimates, does that mean without the EPA's Social Cost of Methane estimates the rule would result in only costs?**

Response: No. The rule is expected to reduce 210,000 tons of VOCs and 3,900 tons of air toxics in 2025. These reductions are expected to yield benefits; however, the EPA was not able to place a monetary value on those emission reductions. Those benefits include reductions in health effects related to fine particle pollution, ozone, and air toxics, along with improvements in visibility. Ozone is linked to a variety of serious public health effects, including reduced lung function, asthma attacks, asthma development, emergency room visits and hospital admissions, and early death from respiratory and cardiovascular causes. Air toxics are known or suspected to cause cancer and other serious health effects. The consideration of non-monetized benefits is consistent with E.O. 12866, 13563, and OMB Circular A-4.

[2] This external peer review was added to the EPA Peer Review Agenda in November 2014. The public was invited to provide comment on the peer review plan, but EPA did not receive any comments.

The monetized benefits of $690 million in 2025 (2012$) outweigh estimated costs of $530 million, and do not capture additional human health benefits expected from reductions in hazardous air pollutants, ozone, and particulate matter.

6. **Ms. McCabe, it is my understanding that the same three integrated assessment models are used to measure the Social Cost of Carbon and the Social Cost of Methane. It is well understood that what goes into a model dictates what comes out of a model. Is it the case that EPA by choosing discount rates of 2.5%, 3.0% and 5.0% and ignoring the 7% discount as required by OMB guidance made an arbitrary decision so that the resulting estimates would be greater than the expected costs of greenhouse gas related regulations, including the Clean Power Plan and the recent NSPS for methane for the oil and gas sector?**

Response: No. As explained in the regulatory impact analysis developed for the final rule and in the 2010 SC-CO_2 Technical Support Document and in my answer to question 1, after a thorough review of the discounting literature, the IWG chose to use three discount rates to span a plausible range: 2.5, 3, and 5 percent per year.

7. **Ms. McCabe, was the decision to ignore the Executive Branch's Office of Management and Budget Circular A-4 guidance in regard to the use of a 7% discount rate for the Social Cost of Methane estimates based on economics or policy?**

Response: As noted in my previous answers, the choice of a discount rate, especially over long periods of time, raises difficult questions of science, economics, and law. Although it is well understood that the discount rate has a large influence on the current value of future damages, there is no consensus about what rates to use in this context. For rules with both intra- and intergenerational effects, agencies traditionally employ constant discount rates of both 3 percent and 7 percent in accordance with OMB Circular A-4. As Circular A-4 acknowledges, however, the choice of discount rate for intergenerational problems raises distinctive problems and presents considerable challenges.

In light of these challenges, the IWG led by OMB conducted an exhaustive review of the discount rate literature and calculated the estimates using three different discount rates: 2.5 percent, 3 percent, and 5 percent. In the "Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12866" the IWG discusses extensively the rationale as to why it applied discount rates of 2.5 percent, 3 percent, and 5 percent in estimating the SCC. (https://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf). While the IWG has updated the estimates and issued several revisions, the methodology has not changed. The discounting framework discussed in 2010 applies to the current SC-CO_2 estimates and the recently published "Addendum to Technical Support Document on Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866: Application of the Methodology to Estimate the Social Cost of Methane and the Social Cost of Nitrous Oxide" (https://www.whitehouse.gov/sites/default/files/omb/inforeg/august_2016_sc_ch4_sc_n2o_addendum_final_8_26_16.pdf).

There is little support in the literature for using rates higher than 5 percent in an intergenerational context. Therefore, the IWG did not calculate the SC-CO_2 and the SC-CH_4 estimates using a 7 percent discount rate. The reasons for not including the 7 percent rate from Circular A-4 are further discussed in the IWG's Response to Comments on the November 2013 Federal Register Notice (https://www.whitehouse.gov/sites/default/files/omb/inforeg/scc-response-to-comments-final-july-2015.pdf; pp 20-22).

Attachment 2—Member Requests for the Record

During the hearing, Members asked you to provide additional information for the record, and you indicated that you would provide that information. For your convenience, descriptions of the requested information are provided below.

The Honorable Joe Barton

1. **The EPA has issued 16 major rules affecting the U.S. Energy and Industrial sectors (appendix 2 of majority memorandum for July 6, 2016, Subcommittee on Energy and Power hearing). These include, among others, the Mercury and Air Toxics (MATS) Rule, Cross State Air Pollution Rule, air rules for the oil and gas industry issued in 2012 and 2016, Boiler MACT, Cement MACT, Brick MACT, the Ozone NAAQS, SO_2 NAAQS, and PM 2.5 NAAQS.**

   A. **Using the 2008 as the baseline, please identify how much each of these rules has improved relevant air quality measures in the United States?**

   B. **Please include the metrics the EPA uses to track the impact of each of these rules on air quality in the United States.**

Response: For over four decades, we have cut air pollution by 70 percent and the economy has more than tripled. Nationally, concentrations of the criteria air pollutants have dropped significantly between 1990 and 2015. For example, carbon monoxide is down 77 percent, lead is down 99 percent, ozone is down 22 percent, fine particles are down 37 percent, nitrogen dioxide is down 47 percent and sulfur dioxide is down 81 percent. In addition, from 1990 to 2011, emissions of air toxics declined by over 60 percent. These reductions are the result of implementing stationary and mobile source regulations.

Based on the EPA's most recent design value assessment where we compute statistics that relate directly to the NAAQS for each pollutant, here is a summary of how many nonattainment areas meet the NAAQS:

- For the 2008 8-hour ozone NAAQS, 26 of 46 original nonattainment areas meet the NAAQS based on 2013-2015 data.
- For the 2006 24-hour PM2.5 NAAQS, 24 of the 32 original nonattainment areas meet the NAAQS based on 2013-2015 data.
- For the 1997 annual PM2.5 NAAQS, 38 of the 39 original nonattainment areas meet the NAAQS based on 2013-2015 data.
- For the 2012 annual PM2.5 NAAQS, 2 of the 9 original nonattainment areas already meet the NAAQS based on 2013-2015 data.

Based on our most recent Air Quality Index assessment where we compute the total number of days reaching the *Unhealthy for Sensitive Groups* category or above in 35 of the largest cities in the U.S.:

- For ozone, the total number of days reaching the *Unhealthy for Sensitive Groups* category or above decreased 46 percent (from 1024 to 548).
- For PM2.5, the total number of days reaching the *Unhealthy for Sensitive Groups* category or above decreased 51 percent (from 282 to 139).

The Honorable Billy Long

1. **Since 2009, the EPA has published approximately 3,900 final rules. Roughly, how many of these rules have been considered economically significant, meaning they have an annual effect on the economy of $100 million or more?**

Response: The EPA does not maintain a list of all regulations that have been deemed economically significant, a test that includes factors beyond just the $100 million per year analysis.

The Honorable Robert Latta

1. **In the "Clean Power Plan" for existing fossil fuel-fired electric generating units, EPA contends Section 111(d) of the Clean Air Act authorizes the agency to set standards that systematically compel a shift away from fossil fuels to generate electricity to renewable energy and efficiency programs.**

   A. **Are any of the 70 source categories currently regulated under Section 111 of the Clean Air Act potentially subject to greenhouse gas regulation under Section 111(b) and/or Section 111(d) going forward?**

   B. **Can you provide a list of emissions sources and industries regulated under Section 111 that would be exempt from greenhouse gas regulation under Section 111(b) or 111(d) going forward?**

Response: The EPA's approach has been to start with the highest emitting sectors. We have not made decisions about what other sectors might require regulation for their GHG emissions under Section 111.